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living a kick-ass life in spite of allergies and eczema

PG Versus Propanediol: The Doctors Weigh In

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Earlier this week, we went over the similarities and differences between Propylene Glycol and Propanediol. As it turns out, they share the same molecular formulas but have different molecular structures (click here to learn more). Many of us have had patch tests come back positive for propylene glycol and doctors say that propanediol is simply an alias for PG.

However, companies that make beauty and personal care products are saying that the type of propanedio they use (1,3-propanediol) is made from corn and is NOT the same as propylene glycol... This is confusing when doctors are saying it's simply a synonym for PG and ALL 1,3-propanediol has the same molecular formula... no matter how it's made.

So... the question remained:

Do our allergies depend on the molecular formula of the substance, the molecular structure or both?

I've been following a lot of doctors on social media (thank you, modern day technology!) and was able to get in touch with a couple to ask them just that.

Here are their responses:



Dr. Gary Goldenberg

Goldenberg Dermatology

"To specifically know if one is allergic to all these substances, patch and allergy testing may be helpful. But in general, there are may be cross reaction with various formulas of the same compound."

When I asked Dr. Goldenberg if testing is available for both propanediols, he said:

"True specialists can patch test you to any chemical available. Some chemicals are known to interact so it may not be necessary."



Dr. Kristin Sokol

Beth Israel Deaconess Medical Center

"Propylene glycol is known to cause allergic contact dermatitis which is a delayed hypersensitivity reaction causing an itchy rash in the areas that were exposed to the compound. There are no reports of other types of allergy to this substance.

I do not really have a great answer to your specific question unfortunately. Usually, if a patient is allergic to a medication for example with a particular chemical structure, we can find another medicine of the same class but with a different structure that they will be able to tolerate. Thus, if there are two different chemical structures, it is less likely that someone will be allergic to both, but of course there are exceptions to every rule.

Since propylene glycol causes delayed hypersensitivity (Contact dermatitis), in theory a patch test could be done to find out if someone is allergic to one or both of the compounds you mention - 1,3-propanediol and 1,2-propanediol. Without this patch test, it would be hard to find out I believe."

Well folks, it seems like there isn't a definitive answer! Since our bodies can behave so differently in comparison to one another, those allergic to PG may or may not react to propanediol. From what Dr. Sokol says, it sounds like it's definitely less likely that we'll react to propanediol, but it's always a possibility that we could indeed react.

In other words: proceed with caution!